GOVERNMENT OF INDIA
AGRICULTURE
LOK SABHA

UNSTARRED QUESTION NO:1879
ANSWERED ON:13.12.2004
AGRICULTURAL SCIENTISTS
Nahata Smt. P. Jaya Prada;Nitish Kumar Shri

Will the Minister of AGRICULTURE be pleased to state:

(a) whether a number of Agricultural Scientists and Researchers are leaving the country due to the lack of basic facilities;

(b) if so, the reaction of the Government in this regard;

(c) whether the Government has taken any remedial steps to check this brain drain;

(d) if so, the details thereof; and

(e) the new breakthrough made by the agricultural research institutes during the last three years?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (SHRI KANTILAL BHURIA)

(a) No, Sir.

(b), (c) & (d): Question does not arise.

(e) As per the Annexure attached.

Annexure

THE NEW BREAKTHROUGH MADE BY THE AGRICULTURAL RESEARCH INSTITUTES DURING THE LAST THREE YEARS.

CUTTING EDGE RESEARCH

- Simple ready-to-use kit developed to differentiate transgenic Bt cotton from non-transgenics on the spot.
- In the 10 Nations` global rice genome project, completed the sequencing ahead of time.
- A cytoplasmic-genic male sterility system along with restorer perfected for hybrid seed production in Indian mustard.
- 1400 varieties of different crops DNA fingerprinted.
- Micro-satellite DNA markers from Rohu genome developed.
- Serum immunologlbulin (IgG) from Indian major carps characterized.
- A kit for rapid detection of food pathogens in dairy products developed.
- Fire-retardant jute composite developed using Euphorbia latex.
- Breakthrough in Foot and Mouth Disease virus (Asia-1) studies- complete cDNA constructed and nucleotide data deduced.
- Early pregnancy diagnosis kit developed for equines through Serum-based sandwich ELISA.
- Diagnostic kits for the PPR (Pestae des Petits Ruminants) virus diseases of small ruminants have been developed for commercialization.

USER-FRIENDLY TECHNOLOGIES DEVELOPED

- Over 250 improved varieties/hybrids of various crops developed including quality protein maize hybrids Shaktiman -1 and Shaktiman -2; super fine rice hybrid Pusa RH -10 and two scented varieties - Pusa Sugandh -2 and Pusa Sugandh -3, etc.
- Cultivation technology of medicinal mushroom (reshi) standardized for the first time in the country.
- Soil map of India on 1:1 million scale prepared and published.
- Soil resource atlas of Bhopal, Guna, Betul, Dhar and Ratlam districts of MP brought out.
- Soil erosion maps for Maharashtra, MP, Gujarat, WB, UP, HP and Tripura printed.
- Perfected resource conserving technology, saved 20-30% of water and nitrogen, in addition to energy.

- Watershed management technology developed, increased cropping intensity up to 175% and productivity by 20-40%.
- The low cost effluent treatment technology for the detoxification of starch and sago factories effluents was developed and successfully transferred.
- Integrated Farming Systems involving crops, livestock, horticulture and agroforestry have been developed.
- Bio-solution found for removing lead and other heavy metals from soil.
- Self-supported edible plastic films from maize starch developed.
- Information system on Animal Genetic Resource (AGRI-IS) containing breed wise information on habitat, characteristics and management practices for various species of livestock was developed.
- Seven strains namely CARI NIRBHEEK, CARI SHYAMA, HITCARI, UPCARI, VANARAJA, GRAMAPRIYA (WHITE), GRAMARIYA (Multicoloured) specially suitable for backyard poultry farming have been released to poultry farms of Govt. of India and 4 SAUs for further testing the performance.
- Five breeds of Sheep (Gaddi, Malpura, Jaisalmeri, Karna and Gurez), four breeds of Goats (Chegu, Black Bengal, Parbatsari and Gaddi), two breeds of Horse (Spiti and Marwari) were fully characterized.
- More than 40 non-conventional feeds identified and technology for use in complete feeds have been developed. More than 100 complete feeds have been developed for feeding growing and milch animals.
- Area specific mineral mixture recommended to improve productive and reproductive efficiency of livestock and poultry. At the farmers field, the supplementation increased milk yield by 0.5-0.6 kg/animal/day, reduced breeding problems and improved breeding efficiency.
- For management of fractures in large animals, a newly designed linear skeletal fixator provided better and stable fixation in fracture management than the conventional fixator.
- Nutrient deficiencies in feed and fodder mapped for whole of the country.
- Successfully bred sand lobster, Kuruma shrimp and Giant freshwater shrimp in captivity.
- A Nucleus making machine for pearl culture which has hitherto been imported has been indigenously developed.
- The breakthrough has been achieved in the seed production and larvae rearing of sea cucumber – Holothuria spinifera for first time in hatchery.
- Fibreglass reinforced plastic fishing boat with improved design operationalized for coastal fishing.
- Technology for ready-to-consume fried mussel in flexible retortable pouch commercialized.
- Tractor mounted till planter developed which performs two operations simultaneously i.e. tilling and sowing.
- Animal operated zero-till drill, power tiller operated multi-crop planter, flail type-power-cum-chopper, harvester for fodder crops, straw chopper, power tiller operated self propelled sprayer, evaporatively cooled hut type structure for fruits & vegetables, green chickpea shelling machine, fluidized bed drier, drier of 3,000 coconuts/batch capacity, machine for production of snowball from tender coconuts, power-operated mechanical seed extractor for pomegranate, demand feeder and i.e. Aqua filter system have been developed.

MANAGING PESTS AND DISEASES

- A kit for differential diagnosis of Pestis-de-Pestitis Ruminants (PPR) and rinderpest using cELISA developed.
- A vaccine for control of the PPR in sheep and goats released for commercial use.
- An ELISA-based diagnostic kit for Equine Herpes Virus developed.
- DNA vaccine against Rabies and Inclusion Body Hepatitis in Poultry ready developed.
- Diagnostic test developed for Bovine Immuno-deficiency virus in cattle and buffaloes.
- A recombinant competitive ELISA kit for rinderpest sero-surveillance was developed for the first time in the country.
- India-admas Epitrack software module has been developed for surveillance of diseases.
- Software developed for forecasting downy mildew disease in grapes and powdery mildew disease in ber and grapes.
- Protocols for tagging gene-imparting resistance to coconut root wilt standardized.
- IPM module using neem-based products and NPV for controlling pod-borer in chickpea and pigeonpea developed.
- Eco-friendly IPM modules standardized for cotton, rice, chickpea, pigeonpea, mustard, cabbage and tomato.
- Latex agglutination test kit for detection of white spot virus in shrimp commercialized.
- DOT-ELISA and sport agglutination for diagnosis of bacterial gill disease of Indian major carps developed.
- A PCR kit for detection of pathogenic bacteria Vibrio cholerae in fish developed.
- A chemical formulation (CIFELOSTRESS) to reduce stress and mortality of fish seed during transportation perfected.

TECHNOLOGY TRANSFER

- Zero Tillage Technology spread to one million hectares resulting in a net annual saving of Rs. 250 crores.
- 4,033 Indigenous Technical Knowledge (ITK) documented, in various thematic areas.
- Mussel and edible oyster farming technology transferred to coastal women farmers. Also, 20 Lakh seed of improved Rohu and 1.3 Lakh eggs/chicks distributed to farmers.
- More than 2,000 prototypes of agricultural implements provided to farmers and entrepreneurs.
- Strengthened 53 Zonal Agricultural Research Stations (ZARS) to take up additional functions of KVKs.